P-8.4 Apply appropriate procedures to balance nuclear equations (including fusion, fission, alpha decay, beta decay, and electron capture).

Revised Taxonomy Levels 3.2 B Apply procedural knowledge

In physical science students were introduced to the concept of isotopes and how to write symbols to represent different isotopes. Students may not have balanced nuclear equations.

It is essential for students to

- Understand nuclear symbols.
- Balance nuclear equations when given all of the particles on both sides of the equation.
  As a general rule:
  - The sum of the mass numbers "A" must be the same on both sides of the equation.
  - The sum of the atomic numbers "Z" must be the same on both sides of the equation.

Teacher note: This procedure can be linked as somewhat analogous to the procedure for balancing chemical reactions.

Assessment

The verb apply means that a major focus of assessment should be for students to show that they can "apply a procedure". The student must be able to apply the procedure for balancing nuclear equations.

The knowledge dimension of the indicator, procedural knowledge means "knowledge of subject-specific techniques and methods" In this case the procedure is application of the procedure for balancing nuclear equations. A key part of the assessment will be for students to show that they can apply the knowledge to a new situation, not just repeat problems which are familiar.